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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/699,707

11/03/2003

Antonio F. Mondragon-Torres

TI-35731

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EXAMINER

LEE, SIU M

ART UNIT

PAPER NUMBER

2611

NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/699,707	<b>Applicant(s)</b> MONDRAGON-TORRES ET AL.	
	<b>Examiner</b> SIU M. LEE	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 3-9, 12-19, 21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-16 is/are allowed.
- 6) ☒ Claim(s) 5, 8 and 18 is/are rejected.
- 7) ☒ Claim(s) 3, 4, 6, 7, 9, 19, 21 and 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments, see page 13-23, filed on 11/19/2009, with respect to 35 U.S.C. 103(a) have been fully considered and are persuasive. The 35 U.S.C. 103(a) rejection of claims 3-8, 18-19, and 22 have been withdrawn.

2. Applicant's arguments filed 11/19/2010 with respect to the double patenting rejection of claims 5, 8, and 18 have been fully considered but they are not persuasive.

Applicant's argument:

Regarding claims 5 and 8:

The applicant pointed out the followings:

i) Claim 5 is directed to an apparatus and the claim of co-pending application is directed to a system.

ii) Claim 5 uses the term "**a plurality of operation blocks** that interconnect the adaptive equalizers" and the claim of co-pending application (11/105755) uses the term "**control logic** interconnecting **at least some** of the adaptive equalizers".

iii) Claim 5 comprises a limitation "a second control mechanism that disables **at least one of said plurality of operational blocks** according to the difference signal delay profiles"; and the claim of co-pending application uses "a second control mechanism that disables **at least a portion of said control logic** according to the different MDPES".

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Regarding claim 18:

The applicant pointed out the followings:

i) Claim 18 is directed to an apparatus and the claim of co-pending application is directed to a system.

ii) Claim 18 uses the term "**a plurality of operation blocks** that interconnect the adaptive equalizers" and the claim of co-pending application (11/105755) uses the term "**control logic** interconnecting **at least some** of the adaptive equalizers".

iii) Claim 18 comprises a limitation "a means for selectively interconnecting the two or more adaptive equalizer and the plurality of operational blocks according to the attributes of signal profile" that is not found in claim 4 of the co-pending application.

Examiner's response:

Regarding claims 5 and 8:

i) Although the preamble of the claim is different (one is directed to a system and one is directed to an apparatus), applicant does not rely on the preamble to define the invention; the "apparatus or system" is not essential to understand limitations or terms in the body of the claim; and the body of the claim defines a structurally complete invention; therefore, the "system or apparatus" in the preamble is not a limitation (Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808, 62 USPQ2d 1781, 1784 (Fed. Cir.2002)).

ii) As the term "a plurality of operation block" is not further define in the claim, the examiner took a broadest interpretation of the term and interpret it as the "control logic"

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in the claim of co-pending application. With respect to the limitation "interconnecting **at least some** of the adaptive equalizers", at least some include the situation "all", therefore, it satisfy the limitation in the instant application " **a plurality of operation blocks** that interconnect the adaptive equalizers".

iii) The limitation "at least one of said plurality of operation blocks" under the broadest interpretation of the limitation can be interpreted as "**all** of said plurality of operation blocks". The co-pending application uses "at least a portion of said control logic", it includes the situation "**all** of said control logic", with the interpretation of "plurality of operation blocks" as the "control logic", the limitation of the co-pending application satisfied the limitation of the instant application.

Regarding claim 18:

Argument i) and ii) are explained in the response of claims 5 and 8.

With respect to argument iii), claim 4 of the co-pending application comprises a limitation "control logic interconnecting at least some of the adaptive equalizer, a control mechanism that, according to different MDPEs, configures at least some of the adaptive equalizer and circuit control logic, and a second control mechanism that disables at least a portion of said control logic according to the different MDPEs". As shown in above, the control logic interconnect at least some of the equalizer and the second control mechanism disables at least a portion of said control logic according to the different MDPEs, therefore by disabling some of the control logic, the second control mechanism obviously selectively interconnecting the equalizers and the control logic, thus satisfied the limitation of claim 18.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 5, 8, 18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3 and 4 of copending Application No. 11/105755 (Patent 7,451,618 B2). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following comparison.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim	Instant application	Claim	Co-pending application
			11/105755

5	<p>An apparatus comprising:</p> <p>two or more adaptive equalizers;</p> <p>a plurality of operational blocks that interconnect the adaptive equalizers;</p> <p>a first control mechanism that configures the adaptive equalizers and the plurality of operational blocks according to different signal delay profiles;</p> <p>a second control mechanism that disables at least one of said plurality of operational blocks according to the different signal delay profiles;</p> <p>and</p> <p>a third control mechanism that disables a computation resource of at least one of said adaptive equalizers according to the different signal delay profiles.</p>	3 (with limitation of claims 1 and 2)	<p>A system, comprising:</p> <p>a plurality of adaptive equalizers adapted to couple to a plurality of receive antennas,</p> <p>each of said antennas capable of receiving a multipath delay profile estimate (MDPE);</p> <p>control logic interconnecting at least some of the adaptive equalizers; and</p> <p>a control mechanism that, according to different MDPEs, configures at least some of the adaptive equalizers and circuit control logic.</p> <p>The system of claim 1, further comprising:</p> <p>a second control mechanism that disables at least a portion of said control logic according to the different MDPEs.</p> <p>The system of claim 2,</p>
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			<p>further comprising:</p> <p>a third control mechanism that disables a computation resource of at least one of said adaptive equalizers according to the different MDPEs.</p>
8	<p>An apparatus comprising:</p> <p>two or more adaptive equalizers;</p> <p>a plurality of operational blocks that interconnect the adaptive equalizers;</p> <p>a first control mechanism that configures the adaptive equalizers and the plurality of operational blocks according to different signal delay profiles;</p> <p>a second control mechanism that disables at least one of said plurality of operational blocks according to the different signal delay profiles;</p>	4 (with limitation of claims 1-3)	<p>A system, comprising:</p> <p>a plurality of adaptive equalizers adapted to couple to a plurality of receive antennas, each of said antennas capable of receiving a multipath delay profile estimate (MDPE);</p> <p>control logic interconnecting at least some of the adaptive equalizers; and</p> <p>a control mechanism that, according to different MDPEs, configures at least some of the adaptive equalizers and circuit control logic.</p> <p>The system of claim 1,</p>

	<p>and</p> <p>a third control mechanism that disables a computation resource of at least one of said adaptive equalizers according to the different signal delay profiles, the first, second, and third control mechanisms comprise multiplexers that receive control signals according to the different signals delay profiles.</p>		<p>further comprising:</p> <p>a second control mechanism that disables at least a portion of said control logic according to the different MDPEs.</p> <p>The system of claim 2, further comprising:</p> <p>a third control mechanism that disables a computation resource of at least one of said adaptive equalizers according to the different MDPEs.</p> <p>The system of claim 3, wherein the first, second and third control mechanisms comprise multiplexers that receive control signals according to the different MDPEs.</p>
18	<p>A system comprising:</p> <p>two or more adaptive equalizers;</p> <p>a plurality of operational</p>	4	<p>A system, comprising:</p> <p>a plurality of adaptive equalizers adapted to couple to a plurality of receive antennas,</p>

	<p>blocks;</p> <p>        a means for selectively interconnecting the two or more adaptive equalizers and the plurality of operational blocks according to attributes of a signal profile; and</p> <p>        a means for disabling a computational resource of at least one of the two or more adaptive equalizers according to said attributes of the signal profile;</p> <p>        the means for selectively interconnecting and the means for disabling comprises a plurality of multiplexers.</p>		<p>        each of said antennas capable of receiving a multipath delay profile estimate (MDPE);</p> <p>        control logic interconnecting at least some of the adaptive equalizers; and</p> <p>        a control mechanism that, according to different MDPEs, configures at least some of the adaptive equalizers and circuit control logic.</p> <p>        The system of claim 1, further comprising:</p> <p>        a second control mechanism that disables at least a portion of said control logic according to the different MDPEs.</p> <p>        The system of claim 2, further comprising:</p> <p>        a third control mechanism that disables a computation resource of at least one of said</p>
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			<p>adaptive equalizers according to the different MDPEs.</p> <p>The system of claim 3, wherein the first, second and third control mechanisms comprise multiplexers that receive control signals according to the different MDPEs.</p>
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(1) Regarding claims 5, 8, and 13:

From the comparison above, the only difference between the claims is the instant application recites "a plurality of operational blocks that interconnect the adaptive equalizers" while the co-pending application recites "control logic interconnecting at least some of the adaptive equalizers". Although the terms used in the instant application and the co-pending application is different, it does not define a patentably distinct invention between the two claims since they perform the same function to interconnect the plurality of adaptive equalizer.

Please see the examiner responses above for the explanation of obviousness.

***Allowable Subject Matter***

5. Claims 12-16 are allowed.

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6. Claims 3-4, 6-7, 9, 19, 21-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 12-16:

The present invention describes a method comprising receiving a multi-path signal profile; determining attributes of the multi-path signal profile, comprising determining an amount of energy in a single sub-signal of the multi-path profile if the length of the multi-path signal profile is less than a maximum number of taps of a single adaptive equalizer; and operating two or more adaptive equalizers, computational resources of the two or more adaptive equalizers, and operational blocks interconnecting said two or more adaptive equalizers according to said attributes of the multi-path signal profile. The closest prior art, Ueda (US 5,644,597) and co-pending application Mondragon-Torres et al. (US 7,561,618 B2) discloses a similar method but fail to disclose determining attributes of the multi-path signal profile, comprising determining an amount of energy in a single sub-signal of the multi-path profile if the length of the multi-path signal profile is less than a maximum number of taps of a single adaptive equalizer; and operating two or more adaptive equalizers, computational resources of the two or more adaptive equalizers, and operational blocks interconnecting said two or more adaptive equalizers according to said attributes of the

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multi-path signal profile. This distinct features has been added to claim 13, thus rendering claims 12-16 allowable.

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SIU M. LEE whose telephone number is (571)270-1083. The examiner can normally be reached on Mon-Fri, 7:30-4:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Siu M Lee/  
Examiner, Art Unit 2611  
4/21/2010

/CHIEH M FAN/

Supervisory Patent Examiner, Art Unit 2611